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# Reusing Superfund Sites





In California's Silicon Valley, Netscape Communications opens a new office campus – allowing the software giant to expand its World Headquarters, and the local community to enjoy the benefits of 1,600 software development jobs. Across the country in Virginia, two parks are added to the York County recreational system – providing thousands of residents with a new place to play softball and soccer.

Farther to the south, a critical maintenance and repair center is built for the Dade County, Florida, rail system – ensuring fast and reliable train service for over 50,000 daily commuters in the Miami metropolitan area. Up in the Mountain Northwest,

outdoor enthusiasts come from miles around to enjoy a 2,500-acre wetlands area in Montana's Warm Springs Ponds – which also provides an important habitat for migrating Canada geese and a breeding ground for dozens of songbird species.

And in West Dallas, Texas, an abandoned strip mall is renovated and the first major supermarket ever built in the area opens for business. In addition to fulfilling a critical need for the residents of this inner-city neighborhood, the new supermarket serves as a catalyst to bring even more development to this low income community, including the building of public service facilities and hundreds of new homes.

Trout fishing at the Silver Bow Creek/Warm Springs Pond site (Butte, Montana)



Children's soccer at the Chisman Creek site (York County, Virginia)



Netscape World Headquarters at the Fairchild Semiconductor site (Mountain View, California)



New supermarket at the RSR Corp. site (West Dallas, Texas)



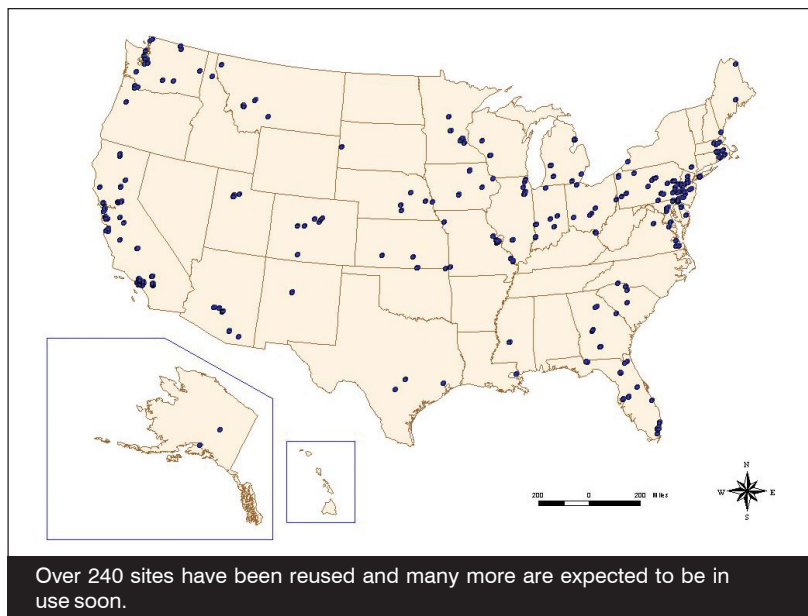
Commuter trains maintained at the Miami Drum Services site (Dade County, Florida)

Five very different success stories from five different areas of the country. But they have one surprising thing in common. The Netscape World Headquarters, the county recreational facilities, the maintenance center for the regional rail system, the wildlife habitat, and the new inner city supermarket – all were built on cleaned up Superfund sites.

Many people still think of Superfund sites as permanent toxic wastelands in the middle of their communities. There are vivid memories of more than 500 families having to leave their homes when the entire town of Times Beach, Missouri, had to be closed because of the discovery of dioxin. And in Love Canal, New York, more than 900 families had to be relocated when hazardous wastes leached from an industrial landfill contaminating nearby homes. Superfund evokes images of workers in “moon suits” and areas fenced off with large “Danger–Keep Out” signs.

That was the 1980s. Two decades later, much has changed. In Times Beach, 265,000 tons of dioxin-contaminated soil was dug up and incinerated. Thanks to new habitat management practices, Times Beach is now an extensive bird sanctuary and migratory bird waterway. At Love Canal, cleanup activities included demolition of the contaminated houses and construction of a specially designed system that permanently entombs the toxic materials. As a result, all contamination is safely contained. Families are now moving back into the area and more than 200 new homes have been sold.

Bird sanctuaries. Revitalized neighborhoods. These are the new images of Superfund. Other images include Jack Nicklaus teeing off at a golf course that



he designed at a closed copper smelter in Montana. Or a Home Depot opening at a site that was once a radium processing plant – bringing new jobs and income to a disadvantaged community near downtown Denver.

Areas that were once dangerous are now being cleaned up and turned into office parks, playing fields, industrial centers, shopping centers, residential areas, tourist centers, and wetlands. Sites that were once abandoned or underused have now become valuable community resources. Areas that once helped to pull the local economy down are now generating new tax revenue and serving as catalysts for broader revitalization.

There have been more than 240 success stories at Superfund sites in all areas of the country – over 130 of them involving totally new uses for a site. But this is just the beginning. These successes will be repeated at hundreds of other Superfund sites in the next few years. One could be at a site in your community.

# How Superfund Sites Have Been Safely and Productively Reused

The stories of successful reuse differ because communities differ. And the reuse of each Superfund site begins and ends with the needs of the particular community in which the site is located.

## Golf and Smelter Slag? Nicklaus Shows How It “Works”

It wasn't Jack Nicklaus who first decided to build the Old Works Golf Course at a shut-down copper smelting facility in Anaconda, Montana. It was the people of Anaconda working together with their local government, the U.S. Environmental Protection Agency (EPA), and the owner of the site, the Atlantic Richfield Company (ARCO).

*“This community is amazing and deserves an incredible amount of credit for making this happen. . . We took something that was entirely a negative, costing too much money and taking too much time, and turned it into something positive for the community.”*

Sandy Stash,  
ARCO's Montana facilities manager



**Anaconda—**  
*Then:* Shut-down  
copper smelter



*Now:* Jack Nicklaus in “sland” trap

The Anaconda Smelter was the backbone of the local economy for a century. When it shut down in 1980, hundreds of people were out of work. The smelter also left behind an environmental legacy of more than 1.5 million cubic yards of soil, slag, and flue dust contaminated with heavy metals such as arsenic, cadmium, copper, lead, and zinc. People were worried that Anaconda would turn into an economic ghost town.

Rather than suffer this fate, the Anaconda community, ARCO, and EPA formed a partnership – not only to clean up the site – but to preserve its historic significance and allow for redevelopment.

They considered a number of options, but one day, Gene Vuckovich, the Anaconda city and county manager, asked: “Why don’t you make a golf course out of it?” His proposal was first met with “a few chuckles” and some skepticism, but in time, the partnership agreed.

A key component of the success in reusing the site as a golf course was the participation of Jack Nicklaus. As Anaconda city and county manager Vuckovich put it: “I think we interviewed seven of the ten top golf course designers in the country and we chose Jack Nicklaus. We didn’t want just any old course, we wanted a world class course.”

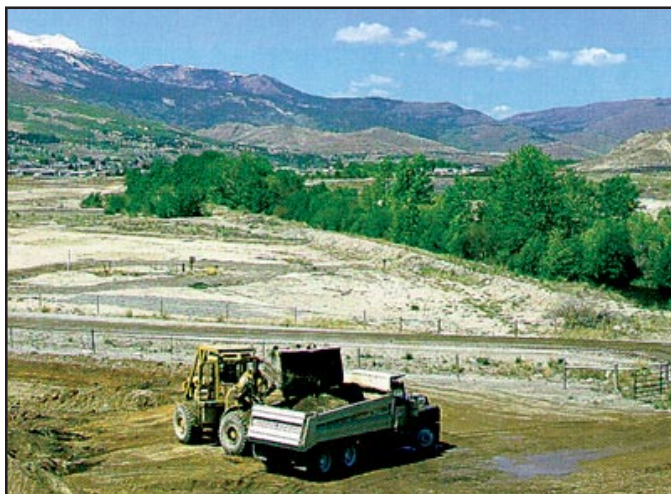


As designer, Nicklaus took advantage of the area's spectacular mountain vistas and preserved many of the unique historic characteristics of the former smelting site. He used one of those characteristics to create the most distinctive aspect of the course. Nicklaus decided not to fill the bunkers with ordinary white sand, but instead with black "sland" – an inert and harmless sand-like slag left behind by the smelter's furnaces. Besides providing players with the unique challenge of hitting their wayward balls out of "sland" traps, these black bunkers add to the striking visual appeal of the golf course.

*"We had an opportunity out here to either do something with the land, or not do something with the land. Just give me the worst site, and we'll make something out of it, because you can take land and do something with it if you have a little bit of imagination."*

Jack Nicklaus,  
designer of the Old Works Golf Course

In the end, the partnership between the people of Anaconda, ARCO, EPA, and Nicklaus created a course that *Golf Journal* praised as "world class . . . with 18 fascinating holes."



Cleanup of the Anaconda Smelter site paved the way for construction of a world class golf course.

## Internet Communicators Replace Ground Contaminators

One thousand miles to the southwest in Mountain View, California, there was a different community with a different need. So that community came up with a different reuse for a former Superfund site.

*"History may not repeat itself, but addresses in the Valley do. In the '60s and '70s this was the site of Fairchild Electronics, which put the "Silicon" into Silicon Valley. Fairchild was bought out, and in '95 the site became home to then start-up Netscape. Netscape's headquarters remain here – a Superfund cleanup site, by the way."*

Washington Post

Mountain View is not a depressed community in need of economic revitalization. Located in the heart of Silicon Valley, Mountain View is at the center of America's high-tech economic boom. Real estate in Mountain View is among the most valuable in the country.

All the more reason not to allow 56 acres of that precious real estate to lie idle. The Fairchild Semiconductor Superfund site was once the home of more than a dozen computer firms that used solvents daily in their manufacturing process. Hundreds of gallons of these solvents were spilled into the soil and groundwater over a 20-year period. In 1981, the State of California discovered contamination in the underlying aquifer that provided drinking water for 270,000 residents.

To clean up and redevelop the Fairchild site, a partnership was formed between the Mountain View community, EPA, the State of California, the City of Mountain View, and Keenan-Lovewell Ventures, a local real estate developer. To ensure public safety, it was necessary to excavate and treat more than 1,700 cubic yards of contaminated soil. The cleanup also involved removing several underground storage tanks, and constructing groundwater treatment plants on the property.

As the cleanup proceeded, Keenan-Lovewell began plans to build office developments at the former Fairchild site. The first occupant was high-tech giant, Netscape Communications. Netscape used this property to add a new facility to its World Headquarters – an office complex that resembles a park or a college campus more than the workplace of 1,600 top executives, programmers, marketers, and testers. Complete with cascading fountains and acres of lush greenery, this once-contaminated industrial site now adds beauty to the Mountain View community while also adding substantial income to the local economy.

These are the stories of Anaconda and Mountain View. And their stories are being repeated at communities all over the country. Properties that once lay idle – drains on the local economies – are now being put back into productive use. Areas that were once dangerous and off-limits are now places where people can safely work and play. These are only some of the benefits for a community that decides to redevelop and reuse a Superfund site.



## ***A Welcome Change for a Southern Town*** **Woolfolk Chemical Plant, Georgia**

Woolfolk Chemical Plant began operations in 1920. During World War II, the U.S. Chemical Warfare Service used the plant to manufacture arsenic trichloride, a key ingredient of poison gas. Later, the plant produced lawn, garden, and agricultural pesticides. In the 1980s, the State of Georgia discovered that chemicals had seeped from the plant into the surrounding soil and groundwater. EPA determined that the contamination posed a threat to the town's 8,000 residents and would require immediate cleanup.

EPA worked closely with Canadyne-Georgia, the plant operator, to remove 3,700 cubic yards of arsenic-laden soil, along with contaminated buildings and debris. Following the cleanup, EPA, Canadyne-Georgia, and the local community met to discuss the best use of these properties. At the community's request, a contaminated



antebellum farmhouse was cleaned up and remodeled into a tourist welcome center and office space for the Fort Valley Chamber of Commerce. Also, several contaminated homes were torn down to make way for a new community library. In addition to attracting new business to the community, the reuse of this toxic waste site has rekindled civic pride.

## Are These Sites Safe?

Yes, they are. The Environmental Protection Agency's first priority at any Superfund site is to protect human health and the environment. In fact, EPA is required by law to clean up a site so that it protects human health and the environment before that site can be reused.

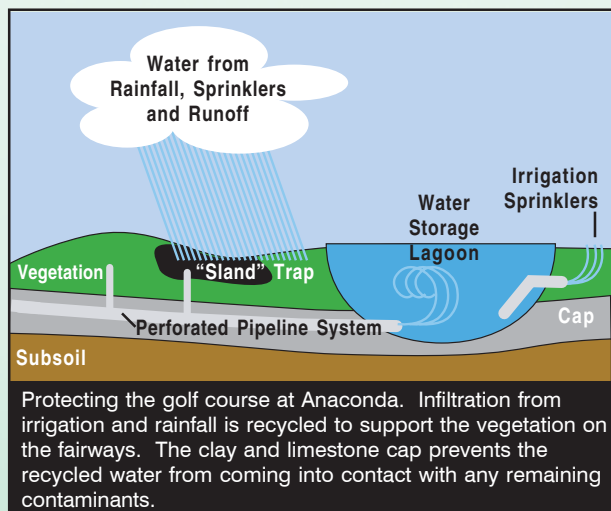
EPA takes careful and thorough measures to make sure that each site is safe before it is returned to use. There is no one approach that fits every site. Rather, an individual, step-by-step strategy is developed for each site to make certain that the cleanup, when complete, protects human health and the environment. At each stage, EPA consults with the neighboring community.

Here are the steps that EPA takes to make sure a site is safe:

1. EPA thoroughly investigates contamination problems at the site. The investigation is designed to tell EPA whether human health or the environment is threatened by contamination, and if so, what the nature and extent of the contamination is.
2. EPA meets with the site owner, the community, and other interested parties to find out what they can reasonably anticipate the future use of the site to be.
3. Based on its investigation, EPA selects a cleanup strategy that is tailored to the individual site and takes account of anticipated future uses. Before proceeding, EPA asks the community to comment on this strategy.
4. Site cleanup begins and is not considered complete until the area is safe for the intended use.
5. After cleanup, EPA monitors a site to guard against any problems that might arise.

The Anaconda site provides a good example of how site cleanup can protect human health and the environment while also accommodating future use. When the community decided it wanted to reuse the site as a golf course, EPA and ARCO used a variety of techniques to make the site safe. The EPA/ARCO partnership treated and contained approximately 316,500 cubic yards of flue dust at the former smelter using a cement/silica-based stabilization technique that transformed the dust into an inert solid. The 250-acre area of the golf course was covered with a thick clay and limestone cap topped by 18-20 inches of soil to support the golf course's vegetation.

In addition, the cleanup partners installed a state-of-the-art irrigation system. Water from sprinklers, rainfall, and runoff now filters down through the vegetation and traps where the water collects in a perforated underground pipeline. The underground pipe drains into storage ponds. A computerized irrigation system then takes the captured water in the ponds and reuses it for watering the fairways and greens. Situated beneath both the topsoil and the pipeline, the clay and limestone cap blocks any further penetration of water into underlying soils. This unique and complex system ensures that anyone playing golf or walking on the surrounding hiking trails is protected from contamination.





There are as many ways to clean up a Superfund site as there are types of sites. EPA tailors the techniques and technologies to the individual problems posed by different areas of a site. Here are some of the cleanup techniques that EPA uses, among others, to make sure that all areas of a site are safe:

- **Removal:** Moving contaminants from the site to a facility that can safely handle the waste.
- **Treatment:** Processing the waste at the site to remove the contaminants from soil, sediment, or groundwater.
- **Recycling:** Treating or converting toxic waste material to make it safe and reusing it for other purposes.
- **Containment:** Placing covers over toxic waste deposits or installing barriers around them to prevent migration and to keep people from coming into contact with the waste.
- **Thermal Treatment:** Using elevated temperatures to render contaminants harmless by increasing their volatility; immobilizing them; or destroying them through burning, decomposition, or detonation.
- **Solidification:** Physically binding or enclosing toxic contaminants within a solid mass like cement.
- **Stabilization:** Inducing chemical reactions between a stabilizing agent (such as lime, Portland cement, fly ash, or kiln dust) and the contaminants to reduce their mobility.
- **Bioremediation:** Breaking down toxic contaminants by using natural microorganisms.
- **Chemical Transformation:** Detoxifying contaminants by transforming their chemical structure.
- **Natural Attenuation:** Using natural biotransformation processes such as dilution, dispersion, volatilization, biodegradation, adsorption, and chemical reactions to reduce contaminant concentrations to acceptable levels.

At the Anaconda Smelter site, EPA and ARCO applied several of these cleanup techniques to make certain that the area was safe before it was reused. In different areas of the site, wastes were removed, recycled, treated, or solidified. To protect people and keep animals from coming into contact with wastes remaining on-site, the golf course was constructed atop a thick containment cap. For future protection of the groundwater, the entire course was lined with clay and limestone, and a complex drainage system was put in place.



Anaconda after cleanup and reuse – Golfers on the ninth tee can now take aim at the smokestack of the former copper smelter



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# How Communities Have Benefited From Reusing Superfund Sites

## More High-Tech Development in Mountain View

The benefits to Mountain View in redeveloping the Fairchild site were immediate. The office campus at the former Superfund site is an expansion of Netscape's World Headquarters. The high-tech executives and employees who work at the Netscape campus collectively earn more than \$153 million annually – infusing over \$122 million of personal spending into the economy and providing more than \$11 million in local and state taxes.

However, the benefits to Mountain View in redeveloping the Fairchild site do not stop with Netscape. Other firms are either leasing space or building their own office developments on the former Superfund site. The firms read like a Who's Who of the "old" and "new" economies: America Online, Veritas Software, Hewlett-Packard, Open TV, Nokia, Micro Focus, Synopsys, and KPMG Peat Marwick. By 1999, all the available office space had been leased and most of the remaining property was at some stage of development.

## A New Sense of Pride in Anaconda

In Anaconda, the benefits of reuse are harder to measure, but just as important. Anaconda was historically a one-factory town and that factory closed down. Unemployment was high and many in the community worried that their town would not survive.

The Old Works Golf Course not only provides a new place for the residents of Anaconda to exercise and have fun – but has also created a

new sense of pride in the community. What's more, the golf course is becoming a tourist magnet. People come from miles around because they have heard about the unique and beautiful Jack Nicklaus-designed course. They come to play golf – and find out that the area also offers excellent skiing, fishing, hiking, and hunting. So they come back.

*"I'm amazed at what they've done. There was nothing living out there before. It was desolate. There was nothing out there."*

Gene Colucci,  
lifelong Anaconda resident



*More than just golf –*  
Hikers on a trail that highlights Anaconda's smelting heritage

As the recreational opportunities have increased, new jobs have been generated. The new opportunities have also led to a rise in property values around the Old Works Golf Course and an increase in business investments. What's more, this attention to the recreational opportunities of the area has created a renewed respect for its ecology. The once-barren landscape is slowly being restored to its former beauty. Trout once again fill Warm Springs Creek, and the plant and animal life are flourishing.

New jobs. New recreational opportunities. Higher property values. More income to the community. A new sense of pride. These are just some of the benefits of reusing Superfund sites.

## **New Uses for Sites Around the Country**

Sites can be reused in many ways. Most are put into commercial use after cleanup; others are reused for recreational, ecological, residential, public service or agricultural purposes. Often a cleaned-up site will be home to more than one type of reuse. For example, there may be an area of retail stores with neighboring ball fields. These multi-use sites can bring a great variety of economic and quality-of-life benefits to communities.

### **Benefits of Commercial Reuse**

- 31,987 jobs
- Over \$1.3 billion in annual income

### **Commercial Use.**

Netscape's transformation of the Fairchild site into a high-tech office campus is a good illustration of commercial use, but it is only one of many examples. Former Superfund sites (many in economically-troubled areas) are now the location of

## **From Wasteland to Wetlands**

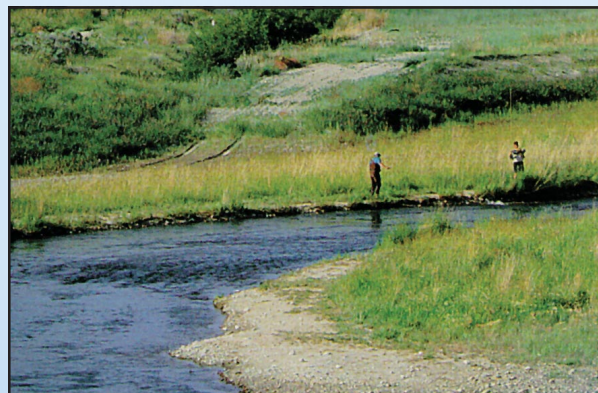
### **Silver Bow Creek/Warm Springs Pond, Montana**

#### **[Ecological/Recreational Uses]**

Years of copper mining had created a desolate wasteland on this 2,500-acre site. For 65 years miners dumped wastes into four nearby streams that carried contamination from 19 million tons of tailings and other mining wastes into the headwaters of the Clark Fork River. In an attempt to slow the harmful effect of the tailings on the river, the Anaconda Copper Company dug three collection ponds, which in turn became severely polluted.

EPA worked with the Atlantic Richfield Company (ARCO) to clean up the area. EPA and ARCO removed more than 450,000 cubic yards of sediment from the ponds and installed a comprehensive water treatment system.

Today, the wetlands at Warm Springs Pond are an important habitat for migrating Canada geese and breeding area for dozens of species of songbirds. The wetlands also harbor more than 230 types of resident or migratory wildlife. What's more, this restored site provides the community with bike paths, numerous fishing sites, and even an area where dogs can be trained.



Ponds once choked with mining wastes are now a fish and wildlife habitat



retail stores, small businesses, franchises, family-run restaurants, industrial parks, shopping centers, and manufacturing plants. In fact, 164 sites are in some form of commercial use.

**Recreational Use.** The Jack Nicklaus-designed golf course at the former Anaconda smelter may have received the most attention, but there are 33 other sites where communities have developed properties for recreational use. Besides golf courses, communities have created playgrounds, parks, boat launches, campgrounds, ski slopes, and playing fields for soccer, baseball, and softball.

**Over 60,000 acres have been returned to recreational and ecological use**

local interest groups to increase the amount of green space along the Meremac River and develop the site as a park. At 34 other sites, there has been a similar focus on ecological use. New wetlands, wildlife sanctuaries, and wilderness areas have been created in places that were once contaminated and barren. Rivers, lakes, bayous, bays, and streams have been restored to their natural condition.

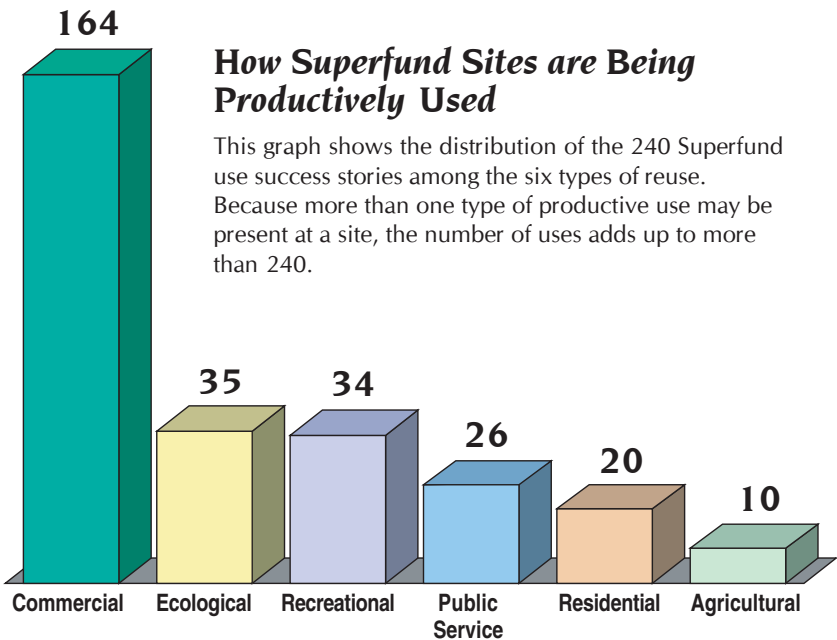
**Public Service Use.** In Florida, the Miami Drum Services site has been redeveloped as the William Lehman Operations and Maintenance Center –

**Ecological Use.**

The once-notorious Times Beach is now a bird sanctuary – thanks to a decision by the State of Missouri and several

**How Superfund Sites are Being Productively Used**

This graph shows the distribution of the 240 Superfund use success stories among the six types of reuse. Because more than one type of productive use may be present at a site, the number of uses adds up to more than 240.



providing a crucial repair facility used by the Dade County rail system to effectively serve over 50,000 commuters a day. In nearby Georgia, a portion of the Woolfolk Chemical Plant has been restored as a public library. Similar public services are provided at an additional 24 sites. Other types of public service uses include visitors’ centers, schools, and many different types of public works facilities.

**Residential Use.** Following the successful cleanup at Love Canal, more than 200 new homes have been built on this formerly desolate landscape. At 19 other sites, communities are developing once-contaminated properties as single-family homes or using them for apartments, condominiums, or assisted-care housing.

**Agricultural Use.** At ten sites, the land is being used for activities such as growing crops and providing pasture for livestock. For example,

when the Silver Mountain Mine in Washington closed, it left behind 7,000 tons of cyanide-laced mine tailings and a basin filled with 20,000 gallons of cyanide-contaminated water. A partnership between EPA, the State of Washington, the local community, and a local rancher resulted in the cleanup and containment of the cyanide contamination which made it possible to once again use portions of the site as grazing land for cattle.

### **One New Use Leads to Another**

In Anaconda, the golf course may be categorized as recreational use, but simply calling it “recreational” tells only part of the story. Golfers who come to the Old Works pay a variety of charges, such as “greens” fees, rentals, and concessions. Also, since many of those golfers come from out of town, they stay at local motels and eat at local restaurants. All this generates income for the community.

So this recreational use also provides new commercial opportunities. And, in the case of Anaconda, these new recreational and commercial opportunities caused the community to have a new respect for the area’s natural surroundings.

In Mountain View, the commercial redevelopment of the former Fairchild site is just one part of a larger plan by the city to link a nearby residential community with the high-tech job center that now occupies the former Superfund site. Plans are underway to build light rail stations, parks, biking trails, and open spaces so that there will be connections (most of them walkable) between where the residents of Mountain View live, work, and play.

Each community decides how far and how wide the benefits of reusing a Superfund site will extend. The particular uses will depend on the needs and desires of your community.

## **Former Site Attracts Retail Giant** **Denver Radium, Colorado**

The Denver Radium site was contaminated with radioactive soil and debris by a radium processing plant that began operations in the early 1900s. Later property owners mishandled these by-products that contained radium-226, arsenic, zinc, and lead by using them as fill or foundation materials. The site was eventually abandoned in the 1980s.

In 1983, EPA began cleanup, excavating tons of radioactive waste. Contaminated buildings and materials were removed and metals-contaminated soil was covered with a protective cap.

In 1996, Home Depot opened a store on the once-contaminated property. The reuse of the Denver Radium site has resulted in many benefits for this largely low income and minority area, including more than 110 permanent jobs, \$1.9 million in total annual income, and substantial increases in public revenue and surrounding property values.



New jobs as well as new shopping opportunities are the result of reuse at former radium processing site.



## Many Uses For A Former Hazardous Waste Site

### RSR Corp. (Murph Metals) Superfund Site

[Residential/Commercial Uses]

For over 50 years, the RSR Corporation operated a lead smelter and disposed of battery material on a site in West Dallas, Texas. The smelter sent lead-contaminated dust into the surrounding community, casting a toxic shadow over homes and businesses within a one-mile radius. Approximately 17,000 people lived in the vicinity of the smelter – a primarily low income and minority population. Within a half mile of the smelter, 10 percent of children under the age of six had lead in their blood at levels that were considered unacceptable when the testing was done in 1983. If today's standards were used, almost 90 percent of the children would have been considered to have unacceptable blood lead levels.

Strong community involvement has played a major role in the ongoing cleanup and reuse of this site – including the appointment of a bilingual team to encourage citizen participation in all decisions.

Cleanup activities involved the demolition, decontamination, and removal of various structures and buildings, including 167 multi-family public housing buildings. Today, blood lead levels in West Dallas are below national averages.



Children's play room at the Dallas Housing Authority Headquarters built on the former RSR site



Location of future homes

The Dallas Housing Authority is making a major push to provide affordable housing for the low-income community surrounding the former RSR Corp. Superfund site. Hundreds of new homes have already been built – with hundreds more expected in the future.



Interior of a new home



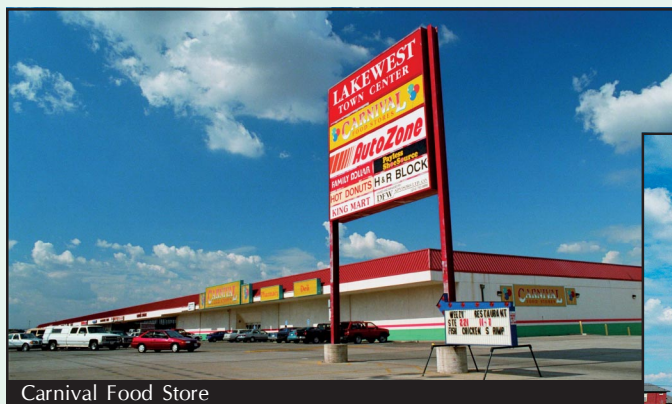
A new public housing duplex

The initiation of cleanup activities at the RSR site has been a catalyst for bringing new development into this impoverished neighborhood. In 1995, the community, EPA, and the Dallas Housing Authority formed a partnership to foster the site's reuse. That same year, a Carnival Food Store opened in a formerly-abandoned section of a strip mall – the first major supermarket development in the West Dallas area.

The Carnival store is only one of many new developments in this low income area. The Lakewest Multi-Purpose Center (started in 1998) houses a YMCA, a Headstart facility, the Parkway Medical

Clinic, and a local branch of the Dallas police. People affiliated with the Texas Rangers baseball team donated a new ballfield, which was built in 1999. And the Dallas Housing Authority is proceeding with a major low-income housing project that includes both the renovation of existing units and construction of over 1,000 new homes. Hundreds of these homes have already been built.

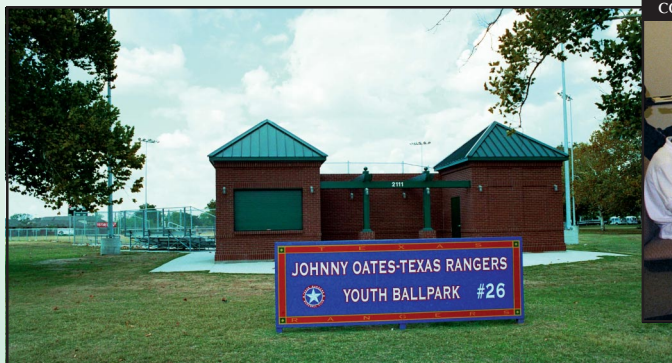
Future developments include Goodwill Industries, which is currently in the planning and design stage of a multi-million dollar facility. Much work still needs to be done, but the future looks bright for this once-contaminated inner-city neighborhood.



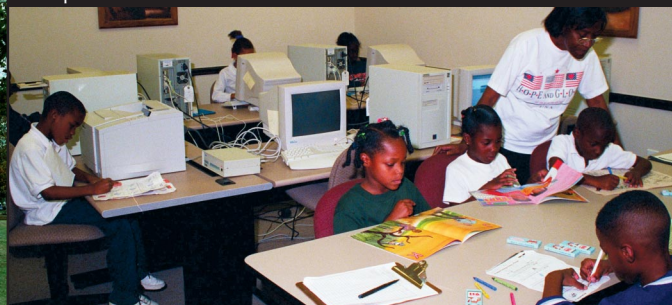
Carnival Food Store



Lakewest Multi-Purpose Center, which includes a children's computer room



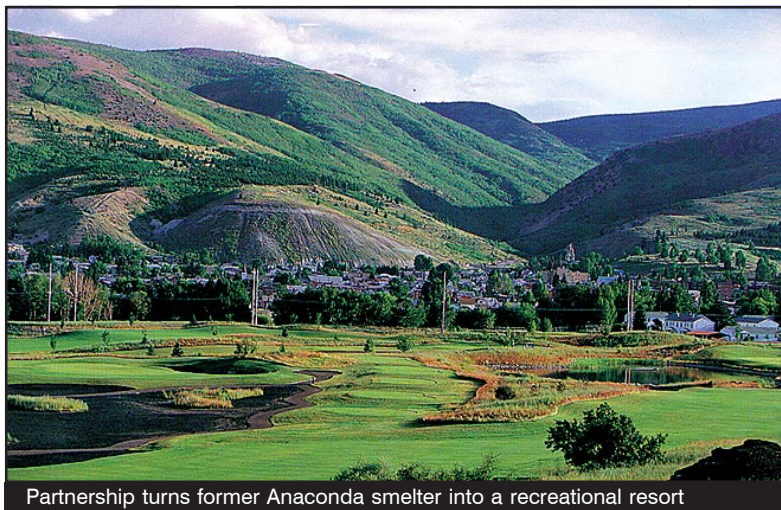
Youth ball field





# How EPA Can Help Communities

On July 23, 1999, EPA announced a national effort (called the Superfund Redevelopment Initiative) to help communities return Superfund sites to productive use. With this Initiative, EPA has put in place a coordinated national program to make certain that communities have the tools and information needed for the reuse of Superfund sites. As always, EPA's first priority is to make sure that all cleanups protect human health and the environment. Without compromising cleanup standards, EPA can help communities and other interested parties to realize the enormous potential of reusing Superfund sites.



Partnership turns former Anaconda smelter into a recreational resort

While the rewards of reuse are great, the challenges of starting on the road to reuse can sometimes seem daunting. Interested communities will sometimes find that the road contains a confusing tangle of technical and legal issues, which they have neither the expertise nor resources to unravel. What's more, there may be substantial costs at the beginning – with returns on the investment not expected for a number of years.

EPA is available to assist communities on the road to reuse. Some of the ways EPA can help include providing assistance in developing partnerships, finding the seed money, understanding technical issues, and overcoming legal barriers.

*"From the beginning, everybody wanted to make this a win-win-win situation. It made for a very enjoyable project. I give a lot of credit to the community and to ARCO."*

Charlie Coleman,  
EPA Project Manager for the Anaconda site

## Developing Partnerships

Partnerships have been key to the reuse of Superfund sites. In Mountain View, a partnership between the community, the State of California, EPA, and a local real estate developer turned acres of contaminated land into a beautiful high-tech campus. In Anaconda, a partnership between the community, EPA, ARCO, and Jack Nicklaus turned a town that many thought was economically and environmentally dead into a revitalized vacation spot with a world class golf course and year-round opportunities for camping, hiking, fishing, and skiing.

These reuse stories clearly demonstrate that partnerships with local businesses, large corporations, state governments, and local officials are essential to the success of Superfund reuse projects. For example, owners of the sites may have the financial resources – and legal obligation – to both clean up a site and set it on the road to reuse. Local developers may have the knowledge – and financial interest – to make certain that a site is reused in a way that is

most economically viable. And local officials have a vested interest to make certain that the new use fits the needs and desires of their community.

Partnerships have been key to reuse – and a crucial partner for successful reuse has been EPA. One way EPA helps communities develop partnerships for reuse is by supporting the formation of Community Advisory Groups (CAGs). CAGs are committees made up of citizens with diverse community interests that provide a public forum for discussing community concerns about Superfund sites – including how the community wants to reuse a site.

Once EPA understands a community's concerns, it can help that community find the right partners for a particular site. For example, the U.S. Soccer Foundation is interested in building soccer fields around the country to help promote the sport. Because many Superfund sites can safely support soccer fields (and plans for local developers to build the fields can be easily integrated into cleanups), EPA has entered into a partnership with the Foundation. If a community is interested in reusing all or a portion of a site for soccer fields, EPA can provide a referral to the U.S. Soccer Foundation.

## ***Outdoor Activities on a Former Dump***

### **Chisman Creek, Virginia**

[Recreational/Ecological Uses]

For 17 years, a local contractor used the abandoned sand and gravel pits on the Chisman Creek property to dump more than 500,000 tons of fly ash from Virginia Power's Yorktown Station. In 1980, complaints of discolored well water prompted state agencies to investigate. Results of the sampling showed heavy metal contamination in Chisman Creek, in the groundwater under the disposal areas, and in various on-site ponds.

A 12-member Stewardship Committee, composed of both professionals and local residents, was organized to oversee the cleanup and redevelopment of the site. The committee decided that a sports park would be the perfect reuse solution. The transformation of the site resulted in a number of benefits to the community. Chisman Creek Park has two lighted softball fields, restrooms, and a parking lot. It supports a 42-team softball league in the summer and is the home of the youth soccer program in the fall. The adjacent Wolf Trap Park features four soccer fields, restrooms, a parking lot, two ponds, and the County's Memorial Tree Grove.

The successful partnership of EPA, York County, and Virginia Power, working together to coordinate the cleanup and redevelopment of the Chisman Creek site, earned an *Environmental Achievement Award* from the National Environmental Awards Council. And the Consulting Engineers Council of Pennsylvania recognized the engineering firm that designed the drainage system, clay cap, and recreational facilities with the *Grand Conceptor* award.



Soccer, softball, and children in place of fly ash and contamination

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## Finding the Seed Money

When EPA began cleanup operations at the Avtex Fibers site in Front Royal, Virginia, a partnership was formed by the community, private development firms, government agencies, and one of the owners of the site, the FMC Corporation. This partnership conducted a number of workshops to determine how the community of Front Royal wanted to use the site. The community determined that portions of the site should be used for various commercial, recreational, and ecological purposes. One of the recreational goals emphasized by the community, and later put in the Master Plan for Avtex Fibers, was to reuse a portion of the site for soccer fields. So when EPA announced the Superfund Redevelopment Initiative at the Avtex Fibers site in 1999, the audience included both officials from the U.S. Soccer Foundation and children from Front Royal who loved to play soccer.

The Avtex Fibers site provides an excellent example of another way EPA can help a community on the road to reuse. Avtex Fibers is one of a number of pilot sites where EPA has provided up to \$100,000 in financial aid for reuse assessment and public outreach to help determine a site's future use. At other sites, the reuse planning and outreach may be financed by companies

### ***Activities that EPA will fund under the pilot program to help determine the future use of a site***

- Reuse assessments and reuse plans
- Facilitation services
- Coordination among government, community members, and organizations
- Public outreach
- Training and workshops
- Citizen advisory groups
- Technical assistance

which have accepted responsibility for the contamination at the site. EPA will consider the results of the assessment and outreach efforts when selecting a cleanup remedy.

In 1999, EPA selected ten sites from around the country as pilots. The pilot sites serve as workshops where EPA, in partnership with the community and other interested parties, can improve the techniques for making cleanups consistent with the intended uses of the site. EPA chose an additional 40 pilots in 2000 and 19 more in 2002.

## Understanding the Technical Issues

Many Superfund sites present communities with issues that require expertise in chemistry, engineering, geology, toxicology, and law. Add in the issue of site reuse, and the community will also need expertise in architecture, financing, construction, and public planning.

EPA makes it possible for communities to hire the experts they need. In Mountain View, EPA helped out with two technical assistance grants (TAGs). TAGs provide up to \$50,000 so that a community can hire technical experts to help its citizens understand and contribute their ideas on a wide variety of issues, including reuse.

EPA also sponsors the Technical Outreach Services for Communities (TOSC) program to help communities cope with hazardous substance issues. TOSC is a no-cost, non-advocacy program run by EPA's five university-based Hazardous Substance Research Centers.



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## Overcoming Legal Barriers

There are many ways EPA can help a community with the often-complicated legal issues that surround Superfund site reuse. Many real estate firms are afraid to develop a Superfund site because of the possibility that the firm could be found liable for the enormous costs of cleanup – even for conditions that existed before anyone at the firm became involved with the site.

At the Fairchild site, EPA entered into a Prospective Purchaser Agreement (PPA) with a local real estate developer, Keenan-Lovewell Ventures. A PPA is an

agreement where EPA conditionally releases a buyer from Superfund liability for contamination that existed before the buyer began work on the site. In return, the buyer agrees to help EPA with its mission of protecting human health and the environment. The PPA requires the buyer to: avoid any activities that would disturb the cleanup; provide EPA with access to the site so that EPA can monitor the success of the cleanup; and, in many cases, help with the cleanup itself. At Fairchild, the PPA provided Keenan-Lovewell with the assurance that it could develop the property without fear of being found liable for conditions that existed before the firm began work.

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## Superfund Redevelopment Pilots

### EPA Assists Communities on Future Site Use

In 1999, EPA gave a jump-start to ten pilot communities from all regions of the country to help them assess future uses of a Superfund site. The jump-start came in the form of financing or services from EPA or the parties who accepted responsibility for contamination at the site. Support was provided to a wide range of communities for a variety of reuse projects. EPA's assistance for all of the pilots included personnel, facilitation, or funding of up to \$100,000 to develop reuse assessments and reuse plans, for public outreach, and for technical assistance. To learn about the background of each of these communities and sites, go to <http://www.epa.gov/superfund/programs/recycle/pilot/round1.htm>. All of these pilots are now developing reuse options and plans or the construction of planned facilities has already begun. A year later, EPA selected 40 additional Pilot communities with Superfund sites to receive financing or other services to help them assess future productive uses for their sites. Read about these pilots at [http://www.epa.gov/superfund/programs/recycle/pilot/p\\_facts/index.htm](http://www.epa.gov/superfund/programs/recycle/pilot/p_facts/index.htm).

In 2002, EPA provided 19 more local governments with assistance in planning for the future reuse of Superfund sites. Some of this assistance was in the form of in-kind services from teams experienced in the redevelopment of Superfund properties. These teams work with the communities to help them analyze the range of realistic reuse opportunities for the Superfund sites in their area and the complex economic, physical, and social infrastructure challenges that can impede Superfund reuse efforts.

Through a collaborative approach that involves the public, EPA, potentially responsible parties, and other organizations such as State entities, non-profits, and historical societies, the assistance teams support community efforts to identify feasible reuse scenarios and resources to help achieve those ends. Services can include market research, site analysis, public meeting facilitation, public outreach assistance, site conceptual designs, and reuse planning assistance. Teams sometimes serve as liaison between EPA and communities. Information on these 19 communities can be found at [http://www.epa.gov/superfund/programs/recycle/pilot/02\\_pilots.htm](http://www.epa.gov/superfund/programs/recycle/pilot/02_pilots.htm).

In Anaconda, both the local community and ARCO played active roles in helping EPA plan the cleanup and redevelopment of the vacant smelter site as the Old Works Golf Course. For its part, EPA helped orchestrate an agreement that transferred ownership of the golf course from ARCO to Deer Lodge County and included a number of conditions that have helped put Anaconda on the road to recovery.

One of those conditions requires ARCO to maintain the systems that have been put in place to stop any remaining contamination from migrating to the golf course area. Another condition mandates that Deer Lodge County use all non-operating revenues from the golf course to support the continued economic growth of the Anaconda area.

## Tools for Managing Liability

### ●Comfort Letters

EPA clarifies the level of interest the government has in pursuing cleanup enforcement at a site or portion of a site

### ●Prospective Purchaser Agreements

EPA provides property purchasers with a promise that the government will not sue them for existing contamination

### ●Discretionary Policies

EPA clarifies how the Agency intends to respond to particular parties or specific circumstances

*"This project – probably more than anything else – speaks to the resilience of this community. This community went through one of the toughest shutdowns when the smelter was shut down. It was literally an industry that had been here for generations. I think what this project says is that this community was not going to let that get them down or being named a Superfund site was going to get them down . . . This project would not have become a reality if the people of Anaconda had not been – the people of Anaconda."*

Sandy Stash,  
ARCO's Montana facilities manager

## A Public/Private Partnership Benefits Denver

### Denver Radium, Colorado

EPA and Home Depot, Inc. agreed that the company would participate in the cleanup of contaminated soil in exchange for limits on liability. With the two parties working together early in the process, cleanup activities were tailored to accommodate construction of a new Home Depot store on the site. EPA and Home Depot built electric and other utility corridors into the protective cap, which ensures the integrity of the cap, protects utility workers, and saves Home Depot money in future maintenance of its facility.



The cooperation among EPA, Home Depot, the community, and the state helped to make the cleanup and reuse of the Denver Radium site a success.

## Industri-Plex: Realizing Possibilities

The Industri-Plex Superfund site was caused by wastes from a 245-acre industrial park in Woburn, Massachusetts, 12 miles north of Boston. The site is now an acclaimed model of successful reuse because EPA, State and local governments, the community, and private developers worked together to transform one of the nation's worst hazardous waste sites into a vital commercial and community asset.

Since 1853, the Industri-Plex site had been the home of various chemical manufacturing operations that contaminated the soil and groundwater. Industrial activities ceased at the site in 1969, and the property was sold for development. In the late 1970s, the community protested when development activities caused strong odors from unearthed wastes. These activities ended in 1980. In 1983, Industri-Plex was added to the National Priorities List (NPL).

In 1989, EPA and the Massachusetts Department of Environmental Protection (MA DEP) reached a settlement with 25 current and former property owners and operators at the Industri-Plex site to clean up the site. The cleanup established redevelopment as an explicit goal, in addition to protecting human health and the environment. It also included institutional controls (ICs), which are legal restrictions on the use of the property. EPA, MA DEP, and the responsible parties created a 'Custodial Trust' to hold title to, manage, and sell 120 undeveloped acres at the site, and to promote the redevelopment of the Industri-Plex site and its surrounding areas.

Today, the site is the location of new businesses, including a busy Target store, an office park, a transportation center, a Marriott Residence Inn, open grassy areas and wetlands, and a major highway exchange with access roads – all adding to the economic vitality of the Woburn community. The reuse of Industri-Plex provides as many as 4,300

permanent jobs, approximately \$147 million in annual income associated with those jobs, and a \$4.6 million potential increase in residential property values within two miles of the site.

The town of Woburn was in the spotlight when its distressing experience with the famous Wells G & H site, adjacent to Industri-Plex, was the subject of the book and movie "A Civil Action." However, the success of the redevelopment that transformed the Industri-Plex site from a Superfund stigma to a symbol of pride won the hearts of this community. Woburn Mayor Robert Dever put it this way "the transformation of this 245-acre site has restored Woburn's pride, hope, and economic future...People realize that the stigma is not forever and that communities can go forward."

For more information on the cleanup and reuse of the Industri-Plex site, watch the video, *Superfund Redevelopment: Realizing Possibilities*, available at <http://www.clu-in.org/studio/video.cfm>. It is also available on the Reusing Superfund Sites CD and can be ordered in VHS format by contacting Melissa Friedland at 703-603-8864 or [friedland.melissa@epa.gov](mailto:friedland.melissa@epa.gov). The video tells the story of the site and introduces the viewer to the key players in its cleanup and redevelopment.



A Target retail store is one of the many redevelopment successes at the Industri-Plex site.



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# *Where Communities Can Find Out More About Reuse*

**A**s Charlie Coleman, the EPA Project Manager for the Anaconda site, put it: Superfund reuse is “win-win-win.” All the parties came out ahead in the Anaconda agreement – and this same all-around success is possible whenever a Superfund site is reused. Reuse helps to protect human health and the environment. It makes land productive (and sometimes beautiful) again. And reuse gives communities a new resource to enhance the ways they live, work, and play.

There have been more than 240 Superfund site use success stories. Hundreds more are expected in the next few years. To help your community become one of these success stories, here is where you can find out more information about the subjects discussed in this brochure:

## *General Sources of Information on Superfund Reuse*

The Superfund Redevelopment Initiative website is at:

**<http://www.epa.gov/superfund/programs/recycle/index.htm>**

For questions about reuse, either call the Superfund Hotline at

**1-800-424-9346** or send an e-mail to **[reuse.info@epa.gov](mailto:reuse.info@epa.gov)**.

## *Sources of Specific Information on Topics Discussed in This Brochure*

How Superfund Sites Have Been Safely and Productively Reused:

**<http://www.epa.gov/superfund/programs/recycle/success/index.htm>**

Are These Sites Safe:

**[http://www.frtr.gov/matrix2/top\\_page.html](http://www.frtr.gov/matrix2/top_page.html)**

How Communities Have Benefited From Reusing Superfund Sites:

**<http://www.epa.gov/superfund/programs/recycle/overview/benefits.htm>**

How EPA Can Help Communities:

**<http://www.epa.gov/superfund/programs/recycle/communit/help.htm>**

# Reusing Superfund Sites

*"We had an opportunity out here to either do something with the land, or not do something with the land. Just give me the worst site, and we'll make something out of it, because you can take land and do something with it if you have a little bit of imagination."*

**Jack Nicklaus**

(at the opening of the Old Works Golf Course, which Nicklaus designed over a cleaned up Superfund site)